SECTION 11 73 00
CEILING MOUNTED PATIENT LIFT SYSTEM

PART 1 - GENERAL

1.1 DESCRIPTION

Ceiling Mounted Patient Lift Systems for the transfer of physically challenged patients are specified in this section.

1.2 RELATED WORK

A. Section 01 00 00, GENERAL REQUIREMENTS: Requirements for pre-test of equipment.

B. Section 13 05 41, SEISMIC RESTRAINT REQUIREMENTS FOR NON-STRUCTURAL COMPONENTS: Seismic requirements for non-structural equipment.

C. Section 26 05 11, REQUIREMENTS FOR ELECTRICAL INSTALLATIONS: General Electrical Requirements and items, which are common to sections of Division 26.

1.3 QUALITY ASSURANCE

Certification for compliance is required for Ceiling Mounted Patient Lift Systems. Certifications shall be provided by an independent third party who will conduct testing to ensure that the ceiling lift and charging system are safe and in compliance with ISO 10535 & UL 60601-1

1.4 SUBMITTALS

A. Submit in accordance with specification Section 01 33 23, SHOP DRAWINGS, PRODUCT DATA AND SAMPLES.

B. Certificates of Compliance

C. Manufacturer's Literature and Data:

1. Lifting Capacity
2. Lifting Speed
3. Horizontal Displacement Speeds
4. Horizontal Axis Motor
5. Vertical Axis Motor
6. Emergency Brake
7. Emergency Lowering Device
8. Emergency Stopping Device
9. Electronic Soft-Start and Soft-Stop Motor Control
10. Current Limiter for Circuit Protection
11. Low Battery Disconnect System
12. Strap Length
13. All equipment anchors and supports. Submittals shall include weights, dimensions, center of gravity, standard connections, manufacturer's

recommendations and behavior problems (e.g., vibration, thermal expansion,) associated with equipment or piping so that the proposed installation can be properly reviewed.

D. Individual Room layouts showing location of lift system installation shall be approved before proceeding with installation of lifts.

1.5 APPLICABLE PUBLICATIONS

A. The publications listed below form a part of this specification to the extent referenced. The publications are listed in the text by the basic designation only.

B. International Organization for Standardization (IOS):
10535-06.....Hoist for the Transfer of Disabled Persons-Requirements and Test Methods

C. Underwriters Laboratories (UL):
60601-1.....Medical Electrical Equipment: General Requirements for Safety
94-2006.....UL Standards for Safety Test for Flammability of Plastic Materials for Parts in Devices and Appliances-Fifth Edition

D. International Electromagnetic Commission (IEC):
801-2(1991).....Electromagnetic Compatibility for Industrial-Process Measurement and Control Equipment-Part 2: Electromagnetic Discharge Requirements

PART 2 - PRODUCTS

2.1 CEILING TRACK SYSTEM

The Ceiling Track shall be made from high strength extruded aluminum T66081-T5 at a thickness of 3/16" (4.8mm). Provide anchor supports ~~at a minimum 3 per linear foot~~ **to manufacturer's specifications** at ceiling substrate. The ceiling track shall be finished with baked enamel paint, and be compatible with existing lift units

2.2 LIFT UNIT

A. The Lift Unit shall be constructed of a steel frame system (2205lbs / 1000kg tested) driven by a gear reduced high torque motor

B. The Lift system shall have the following features.
1. Lifting capacity: ~~440~~ **1000** lbs ~~(200 kg)~~
2. Electronic soft-start and soft-stop motor control
3. Emergency lowering device
4. Emergency stopping device
5. Current limiter for circuit protection in case of overload.

6. Safety device that stops the motor to lift when batteries are low.
7. Lifting speed: 2.3in/s (6 cm/s), 1.6in/s (3.5cm) in full capacity
8. ~~Horizontal displacement speed: 5.9in/s (150mm/s)~~
9. ~~Horizontal axis motor: 24VDC at 62 watts and vertical axis motor at 110 watts~~ **Integrated scale with LCD readout in the hand control**
10. Emergency brake (in case of mechanical failure)
11. Strap length up to 90in (2.3m) tested for 2998lbs (1360kg)
12. Cab: VO plastic–fire retardant, UL 94
13. Wireless remote control (optional)

2.3 MOTORS

A. Vertical Movement-DC Motor
   1. Type: Class A, fully enclosed, permanent magnet.
   2. Rating: 24Vdc, 1.1A, 110W, 4000RPM, 0.3N-m.
   3. Mounting: Secured to chassis.

~~B. Horizontal Movement-DC Motor~~
   ~~1. Type: Fully enclosed, permanent magnet, integral reducer.~~
   ~~2. Rating: 24Vdc, 1.8A, 62W, 260RPM, 1.0N-m.~~
   ~~3. Mounting: Secured to chassis.~~

2.4 BATTERIES

A. The life cycle (number of charging cycles) for batteries shall be in compliance with IEC 801-2.
B. Provide **nickel metal hydride** rechargeable batteries with up to 120 transfers with a load of 200lbs (74kg) and up to ~~70~~ **30** transfers with its maximum load of **1000 lbs** ~~440lbs (200kg)~~.

2.5 CHARGER

A. Charger Input: 100-240 Vac, 50/60 Hz.
B. Charger Output: ~~27 Vdc, 1 A max.~~ **33 VAC 2.5 A max**
C. Supplemental to the charger provide ~~a clip on charging station with~~ indicator lights **on the motor**.

2.6 STRAPS AND SLING

A. The straps shall be made of threaded nylon. The straps shall ensure the patient's safety by preventing the patient from falling out of the sling.
B. The sling shall be made from a polyester/nylon net material that is pliable, breathable and easy to use. The sling shall cradle the body of the patient.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Install ceiling mounted patient lift system as per manufacturer's instruction and under the supervision of manufacturer's qualified representative and as shown on drawings.

B. If the distance in between the suspended ceiling and anchors is more than ~~18~~ **12"** ~~consult with manufacturer to determine if~~ lateral braces will be required.

3.2 INSTRUCTION AND PERSONNEL TRAINING

Training shall be provided for the required personnel to educate them on proper operation and maintenance for the lift system equipment.

3.3 TEST

Conduct performance test, in the presence of the Resident Engineer and a manufacturer's field representative, to show that the patient lift system equipment and control devices operate properly and in accordance with design and specification requirements.

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